

# PATENT SPECIFICATION

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(21) Application No. 30621/77 (22) Filed 21 July 1977

(23) Complete Specification filed 24 May 1978

(44) Complete Specification published 23 Sept. 1981

(51) INT CL<sup>2</sup> D06F 43/00

(52) Index at acceptance

D1A B15 H6 R11 R9

D1P 1121 B



## (54) IMPROVED METHOD OF DRY CLEANING

(71) I, KENNETH DAVID GOMM, a British Subject, formerly of Whelpley Ash Farm, Whelpley Hill, Chesham, Bucks HP5 3RR, and now of Thorneycroft, Fairey Cottage, Laxey, Isle of Man, do hereby declare the invention, for which I pray that a Patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a method of dry cleaning a garment.

In dry cleaning processes dirt particles, adhering to a coating of grease or other sticky matter on a garment, are removed by dissolving the grease or other sticky matter in a suitable chemical solvent. Conventionally the solvent and garment to be cleaned are contained within a rotatable drum of a dry cleaning machine. On rotation of the drum, the garment is agitated in the solvent encouraging grease or other sticky matter coated on the garment to be dissolved in the solvent.

Dry cleaning appliances for domestic use are not readily available because of the relatively high cost of manufacturing specialised equipment which can safely operate with the chemical solvents used in dry cleaning processes. Therefore up until the present time it has become accepted practice for members of the public to take all their garments which require to be dry cleaned to commercial premises providing a specialised dry cleaning service or having specialised machines available for hire.

My invention seeks to provide a method of dry cleaning a garment which can be performed in a conventional domestic garment washing or drying machine without damaging the latter.

According to one aspect of my invention, a method of dry cleaning a fabric article comprises positioning the fabric within a foraminated flexible first or inner bag, sealing the first bag and the fabric article contained therein in a liquid-impermeable, flexible second or outer bag containing an appropriate dry cleaning solvent, and agitating the sealed second bag and its contents in a drum of a domestic garment washing or drying appliance so that the dry cleaning solvent or its vapour passes

through the foramina in the first bag and permeates through the fabric article contained therein.

Any convenient dry cleaning solvent (e.g. trichlorethylene) can be used provided it will not damage the bags under the time/temperature conditions existing during a cleaning operation.

Conveniently the solvent is heated whilst the bag is agitated in the appliance so that the solvent in the bag at least partly vaporises. In the case where the appliance is a washing machine, I have found that particularly good results are obtained if the bag is agitated in water, contained in the drum, having a temperature of from 100 to 140°F, e.g. 120°F. In the case where the appliance is a tumbler drier, air supplied to the drum may be heated to a similar temperature.

Suitably the bag is agitated in the drum for at least five minutes, e.g. for a period of ten minutes.

At the end of a dry cleaning process, the two bags are removed from the drum, the outer bag is unsealed, and solvent in the inner bag is allowed to drain out through the foramina into the outer bag as the inner bag and garment contained therein are withdrawn from the outer bag. Finally the garment is removed from the inner bag for subsequent washing and/or drying. The used dry cleaning solvent contained in the outer bag may be re-used if not too dirty, thrown away or even retained for subsequent purification.

My invention will now be described by way of example with reference to the drawing accompanying the provisional specification, the sole figure of which shows a pair of bags for use in the method according to the invention.

The figure shows a pair of open-topped bags, generally designated by the reference numerals 1 and 2, made of polythene. The bag 1, which is smaller than the bag 2, is provided with a plurality (e.g. 100) of foramina in the form of perforations 3 arranged for example in four rows and each having a diameter of from between 3/16" to 1/8". The bag 2 (possibly of somewhat heavier gauge than the bag 1, e.g.

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500 gauge polythene) is shaped so as to have a neck portion 4 of smaller cross-section than its main body portion 5. When lying flat the neck portion 4 typically has a width of 1ft and a height of 6", and the body portion 5 typically has a width of 2 ft and a height of 1½ ft.

A garment (or garments) to be dry cleaned is (are) placed in the bag 1. The bag 1 is then closed (e.g. with a twisted wire or metal clip). The closed bag 1 is then placed in the bag 2, to which is, or has been, added a few hundred ml. of dry cleaning solvent, e.g. trichloroethylene. To enable the correct quantity of dry cleaning solvent to be added to the bag 2, the dry cleaning solvent may be disposed from a container (not shown), e.g. a sachet or bottle, containing only sufficient solvent for one cleaning operation. The neck portion 4 is then gathered together, tightly embraced with a rubber band, folded over and again embraced with the band to seal the bag 2 making it impervious to liquid.

The bag 2, containing the solvent, the bag 1 and the garment(s) to be cleaned, is then placed in the drum of a conventional domestic washing machine. After the drum has been filled with hot water, e.g. from 100°F to 140°F, typically 120°F, the drum is rotated or agitated for a period, e.g. at least 5 minutes and typically 10 minutes. The dry cleaning solvent at least partly vaporises and permeates through the perforations 3 in the bag 1 into the garment(s). At the end of the said period of time, the drum is stopped, emptied and the bags removed therefrom. The bag 2 is first opened by removing the rubber band from the neck portion 4. The bag 1 is then carefully removed from bag 2, allowing any solvent contained in the bag 1 to drain through the perforations 3 into the bag 2. Finally the bag 1 is opened and the garment(s) removed for drying or for wet washing prior to drying.

If the washing machine is an automatic model a medium wash cycle should be selected and the programme terminated when the agitation in the heated water has continued for the required period.

In other embodiments of my invention the water in the washing machine need not be heated. Alternatively, I envisage that the bags 1 and 2 may be agitated in a tumbler drier instead of a washing machine.

The outer bag may be equipped with a tubular portion having a non-return valve. With a garment inside the bag and the bag sealed, dry cleaning solvent may be injected into the bag through the non-return valve. Suitably, in this case, the dry cleaning solvent

is contained in an aerosol or other pressurised container. Alternatively dry cleaning solvent may already be provided in the bag and the non-return valve is merely employed to enable the bag to be inflated so that its walls are pressed against the walls of the drum of the garment washing or drying appliance. In this case the bag acts as a liner for the drum of the appliance and prevents the dry cleaning solvent getting to the working parts of the machine.

#### WHAT I CLAIM IS:—

1. A method of dry cleaning a fabric article comprising positioning the fabric article within a foraminated, flexible first or inner bag, sealing the first bag and the fabric article contained therein in a liquid-impermeable, flexible second or outer bag containing an appropriate dry cleaning solvent, and agitating the sealed second bag and its contents in a drum of a domestic garment washing or drying appliance so that the dry cleaning solvent or its vapour passes through the foramina in the first bag and permeates through the fabric article contained therein.

2. A method according to claim 1, in which the sealed second bag and its contents are agitated in a body of water contained in a domestic garment washing appliance.

3. A method according to claim 2, in which the water is heated so that the cleaning solvent in the second bag at least partly vaporises.

4. A method according to claim 3, in which the water is heated to a temperature of from 100°F to 140°F.

5. A method according to any one of the preceding claims, in which the second bag and its contents are agitated in the bag for at least five minutes.

6. A method according to any of the preceding claims, in which the first bag has a smaller capacity than the second bag.

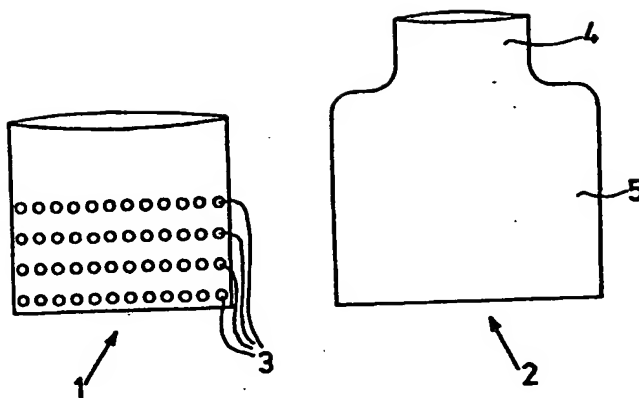
7. A method according to any of the preceding claims, in which the second bag has a neck portion of reduced cross-section which facilitates sealing of the second bag.

8. A method of dry cleaning a fabric article substantially as herein described with reference to, and as illustrated in, the drawing accompanying the provisional specification.

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PROVISIONAL SPECIFICATION  
*This drawing is a reproduction of  
the Original on a reduced scale*



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